REMARKS

The following is intended as a full and complete response to the Final Office Action dated December 28, 2007. Claims 1-30 were examined. Claims 1, 2, 4-8, 10-14, 15, and 17-21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nishikado et al. (US Pub No. 2003/0188013 A1) in view of Elzur et al. (US 6,629,125). Claims 22-30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nishikado in view of Elzur and further in view of Craft (US Pub No.2002/0091844 A1).

Claims 1, 2, 4-8, 10-14, and 29

Claim 1 recites the limitations of extracting TCP payload data from a request and uploading the TCP payload data to a memory. As supported in Figure 4B and paragraph [0056] of the present application, an offload unit is configured to parse the frames received for a connection to extract payload data, which is then uploaded to memory. Claim 1 also recites the limitation that the TCP stack selects the connection processing by the offload unit. As explained in the present application, the offload unit is configured to perform some TCP processing that would otherwise be performed by a host processor at an endpoint of a connection, thereby increasing overall processing efficiency.

In contrast to the recited limitations, the data forwarding apparatus of Nishikado forwards requests and data between endpoints of a connection at an HTTP level and does not teach or suggest a TCP stack. The data forwarding apparatus is not an endpoint of a connection. Therefore, the Nishikado reference fails to teach or suggest the limitations of uploading TCP payload data to a memory for a connection that the TCP stack selects for processing by an offload unit. The Examiner identifies element 93 in Fig. 2 of Nishikado, which is labeled as "an external storage mechanism," as the claimed offload unit. However, Nishikado fails to provide any teaching or suggestion that element 93 is configured to process a connection as recited in claim 1 of the present application.

Similarly, Elzur fails to teach or suggest the limitation that a connection is selected by a TCP stack for processing by the offload unit. Elzur describes processing connections using a TCP stack, but does not teach or suggest that the connections are selected for processing by the TCP stack. Craft also fails to teach or suggest connections that are selected for

processing by a TCP stack, extracting TCP payload data from a request, and uploading TCP payload data to a memory.

Since none of the references cited by the Examiner teaches or suggests a TCP stack configured to select connections for processing by an offload unit, claim 1, and claims 2, 4-8, 10-14, and 29 dependent thereon, are patentable over any combination of Nishikado, Elzur, and Craft.

Furthermore, combining the network controller of Elzur with the data forwarding apparatus of Nishikado does not in any way contribute to the data forwarding functionality of the data forwarding apparatus disclosed in Nishikado. The data forwarding apparatus is configured to receive data communications and forward the data communications to an endpoint (client or server) based on priority token information that is stored in the connection management table. Modifying the data forwarding apparatus to extract the data from the communications and upload the data to memory is therefore unnecessary. Rather than reducing consumption of bus resources, as suggested by the Examiner, the unnecessary uploading of data to memory needlessly consumes memory bandwidth without providing any real benefit.

Claim 2 recites the limitation of copying a portion of the second frame into a portion of the entry in the delegated connection table. As stated by the Examiner, Nishikado describes setting the process privilege depending on the client or destination address. Setting a value in a table entry based on data in the frame is not simply the same as copying the actual data from the frame into the table entry. Therefore, Nishikado fails to teach or suggest the limitation recited in claim 2 of the present application. Elzur and Craft each fail to disclose copying data from a frame into a table entry too. Therefore, claim 2 is patentable over any combination of Nishikado, Elzur, and Craft.

Claim 5 recites the limitation of notifying the TCP stack when payload data is uploaded. As previously explained, Nishikado does not teach or suggest a TCP stack. Craft and Elzur each fail to teach or suggest the limitation of notifying a TCP stack. Therefore, claim 5 is patentable over any combination of Nishikado, Elzur, and Craft.

Claim 10 recites the limitation that the payload data is uploaded to the legacy buffer when a user buffer is not available. As supported in the present application, rather than waiting for a user buffer to become available, theclaimed offload unit uploads payload data for delegated connections to a legacy buffer, minimizing the need to buffer the payload data

within the offload unit. Nishikado fails to teach or suggest this limitation. Elzur and Craft each fail to teach or suggest a situation where a buffer is not available to receive payload data. Therefore, claim 10 is patentable over any combination of Nishikado, Elzur, and Craft.

Claim 14 recites the limitation of determining that an ACK number in a frame is more advanced than a sequence number that is stored in a table entry and copying the ACK number to the entry. Importantly, the ACK number is in a frame of the connection, not from the delegated connection table. The ACK number is copied from the frame to the delegated connection table to replace the sequence number when the ACK number is more advanced than the sequence number. As noted by the Examiner, Nishikado describes extracting the connection management table entries sequentially (process 1064) to compare the destination to the destination information 51 of the request (see paragraphs [0148]-[0152] of Nishikado). Nowhere does Nishikado describe copying destination information 51 to the connection management table entry. Elzur and Craft also fail to teach or suggest the limitations recited in claim 14 of the present application. Therefore, claim 14 is patentable over any combination of Nishikado, Elzur, and Craft.

Claims 15-28 and 30

Claims 15 and 22 each recite the limitation of a connection data portion of a delegated connection table that stores an expected sequence number, an acknowledgment number, timestamp data, and a count of unACKnowledged frames. The connection data portion of the delegated connection table is shown in Figure 7 and described in paragraph [0092] of the present application.

Nishikado fails to teach or suggest that the delegated connection table stores an expected sequence number, an acknowledgment number, timestamp data, and a count of unACKnowledged frames. As shown in Figure 4 of Nishikado and described in paragraph [0080], the disclosed delegated connection table stores a destination field, a next hop, a maximum connection number field a connection number field, a maximum queueing number field, a maximum wait time field, a maximum wait frequency field, a request queue, and priority token updating condition information. Therefore, the Examiner relies on Figure 3 of Elzur for the teaching of storing an expected sequence number, an acknowledgment number, timestamp data, and a count of unACKnowledged frames. Figure 3 illustrates the fields of a network protocol header of a packet, but the figure does not show an expected sequence number, timestamp data, or a count of unACKnowledged frames. More importantly, nowhere

does Elzur teach or suggest storing the frame headers in a delegated connection table. The illustration of a protocol header does not rise to the level of a teaching required to anticipate or render obvious the pending claims. With respect to Craft, a careful reading of this reference reveals that it does not teach or suggest an expected sequence number, an acknowledgment number, timestamp data, and a count of unACKnowledged frames and therefore fails to cure the deficiencies of Nishikado and Elzur relative to claims 15 and 22. INIC storage unit 70 (shown in Figure 2), is described in paragraph [0050] as a disk drive or collection of disk drives and corresponding controller. Such storage is not well-suited to store delegated connection information. Furthermore, storage unit 70, as described by Craft, is configured to store data, not delegated connection information. As described in paragraph [0093] of the present application, the delegated connection information state information is needed during the frame processing is up-to-date state information. The delegated connection table is a storage resource, e.g. random access memory (RAM), a register file, or the like (see paragraph [0048] of the present application). Furthermore, as shown in Figure 3 of the present application, the claimed delegated connection table is directly coupled to both the transmit engine and the receive engine and is configured to simultaneously service requests to both engines. In contrast, INIC storage unit 70 of Craft is unable to provide up-to-date state information during frame processing due to the greater read and write latency of INIC storage unit 70.

As the foregoing illustrates, no combination of the cited references can render either claims 15 and 22 or claims 16-21 and 23-28 and 30 that depend from claims 15 and 22, respectively, obvious.

Claims 29 and 30 include the limitation of <u>modifying/updating</u> of connection state data that includes clearing an unACKnowledged count, updating the ACK number with a last ACKnowledged number, and updating the expected sequence number with an incremental sequence number, as described in [00145] of the present application. Neither Nishikado, Elzur, nor Craft teach or suggest clearing an unACKnowledged count, updating the ACK number with a last ACKnowledged number, and updating the expected sequence number with an incremental sequence number. Therefore, claims 29 and 30 are patentable over those references.

CONCLUSION

Based on the above remarks, Applicants believe that they have overcome all of the rejections set forth in the Final Office Action mailed on December 28, 2007 and that the pending claims are in condition for allowance. If the Examiner has any questions, please contact the Applicant's undersigned representative at the number provided below.

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